TSPH

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NEET 2023 QUESTION PAPER
CHEMISTRY

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The Science Private's Hub

XI-XII SCIENCE

JEE (Mains & Adv.) | NEET | MHT-CET

F6

NEET 2023
Chemistry

Section – A (Compulsory)

51. Given below are two statements : one is labelled as Assertion A and the other is labelled as Reason R:

Assertion A : Metallic sodium dissolves in liquid ammonia giving a deep blue solution, which is paramagnetic.

Reasons R : The deep blue solution is due to the formation of amide.

In the light of the above statements, choose the correct answer from the options given below :

(1) Both A and R are true but R is NOT the correct explanation of A.

(2) A is true but R is false.

(3) A is false but R is true.

(4) Both A and R are true and R is the correct explanation of A.

52. **The conductivity of centimolar solution of KCl at 25°C is 0.0210 ohm^{-1} cm^{-1} and the resistance of the cell containing the solution at 25°C is 60 ohm. The value of cell constant is**

(1) 3.28 cm^{-1} (2) 1.26 cm^{-1}

(3) 3.34 cm^{-1} (4) 1.34 cm^{-1}

53. **For a certain reaction, the rate = k[A]^2[B], when the initial concentration of A is tripled keeping concentration of B constant, the initial rate would**

(1) increase by a factor of six.

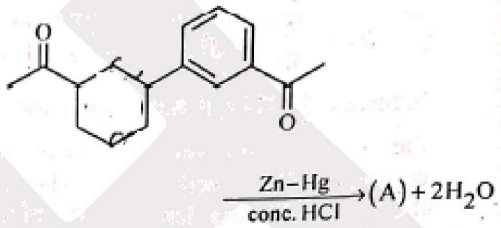
(2) increase by a factor of nine.

(3) increase by a factor of three.

(4) decrease by a factor of nine.

54. **Identify product (A) in the following reaction:**

(1)



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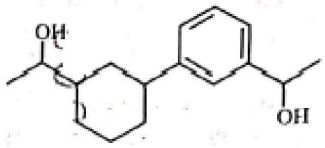

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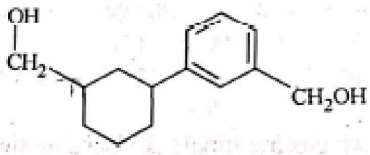

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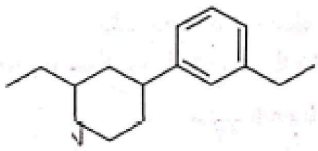


55. **Which one is an example of heterogenous catalysis?**

(1) Hydrolysis of sugar catalysed by H$^+$ ions

(2) Decomposition of ozone in presence of nitrogen monoxide.

(3) Combination between dinitrogen and dihydrogen to form ammonia in the presence of finely divided iron.

(4) Oxidation of sulphur dioxide into sulphur trioxide in the presence of oxides of nitrogen.

56. Given below are two statements : one is labelled as Assertion A and the other is labelled as Reason R :

Assertion A : Helium is used to dilute oxygen in diving apparatus.

Reasons R : Helium has high solubility in O_2

In the light of the above statements, choose the correct answer from the correct options given below :

(1) Both A and R are true and R is NOT the correct explanation of A.

(2) A is true but R is false.

(3) A is false but R is true.

(4) Both A and R are true and R is the correct explanation of A.

57. **Amongst the following, the total number of species NOT having eight electrons around central atom in its outer most shell, is**

NH_3, $AlCl_3$, $BeCl_2$, CCl_4, PCl_5

(1) 2 (2) 4

(3) 1 (4) 3

58. **The correct order of energies of molecular orbitals of N_2 molecule, is**

(1) $\sigma 1s < \sigma^* 1s < \sigma 2s < \sigma^* 2s < \sigma 2p_z < (\pi 2p_x = \pi 2p_y) < (\pi^* 2p_x = \pi^* 2p_y) < \sigma^* 2p_z$

(2) $\sigma 1s < \sigma^* 1s < \sigma 2s < \sigma^* 2s < \sigma 2p_z < \sigma^* 2p_z < (\pi 2p_x = \pi 2p_y) < (\pi^* 2p_x = \pi^* 2p_y)$

(3) $\sigma 1s < \sigma^* 1s < \sigma 2s < \sigma^* 2s < (\pi 2p_x = \pi 2p_y) < (\pi^* 2p_x = \pi^* 2p_y) < \sigma 2p_z < \sigma^* 2p_z$

(4) $\sigma 1s < \sigma^* 1s < \sigma 2s < \sigma^* 2s < (\pi 2p_x = \pi 2p_y) < \sigma 2p_z < (\pi^* 2p_x = \pi^* 2p_y) < \sigma^* 2p_z$

59. **Match List - I with List – II**

	List I		**List II**
A.	Coke	I.	Carbon atoms are sp^3 hybridised
B.	Diamond	II.	Used as a dry lubricant
C.	Fullerene	III.	Used as a reducing agent
D.	Graphite	IV.	Cage like molecules

Choose the correct answer from the options given below :

(1) A-IV, B-I, C-II, D-III

(2) A-III, B-I, C-IV, D-II

(3) A-III, B-IV, C-I, D-II

(4) A-II, B-IV, C-I, D-III

60. **The number of σ bonds, π bonds and lone pair of electrons in pyridine, respectively are:**

(1) 12, 3, 0 (2) 11, 3, 1

(3) 12, 2, 1 (4) 11, 2, 0

61. **The element expected to form largest ion to achieve the nearest noble gas configuration is :**

(1) F (2) N

(3) Na (4) O

62. Given below are two statements : one is labelled as **Assertion A** and the other is labelled as **Reason R :**

Assertion A : A reaction can have zero activation energy.

Reasons R : The minimum extra amount of energy absorbed by reactant molecules so that their energy becomes equal to threshold value, is called activation energy.

In the light of the above statements, choose the correct answer from the options given below :

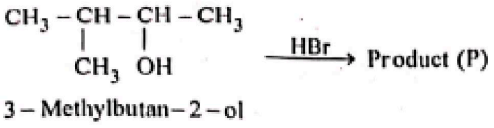
(1) Both A and R are true and R is NOT the correct explanation of A.

(2) A is true but R is false:

(3) A is false but R is true.

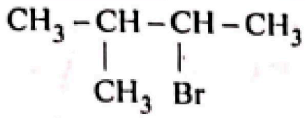
(4) Both A and R are true and R is the correct explanation of A.

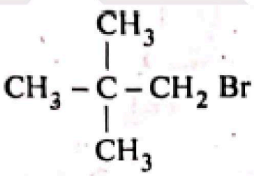
63. Consider the following reaction and identify the product (P).

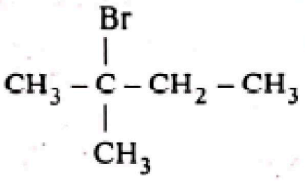


3 – Methylbutan – 2 – ol

(1) $CH_3CH = CH - CH_3$

(2) 

(3) 

(4) 

64. Given below are two statements : one is labelled as Assertion A and the other is labelled as Reason R :

Assertion A : In equation $\Delta_rG = -nFE_{cell}$, value of Δ_rG depends on n.

Reasons R : E_{cell} is an intensive property and Δ_rG is an extensive property.

In the light of the above statements, choose the correct answer from the options given below :

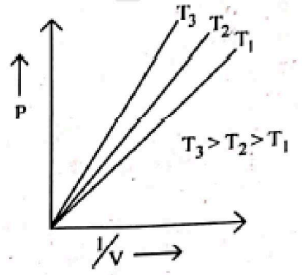
(1) Both A and R are true and R is NOT the correct explanation of A.

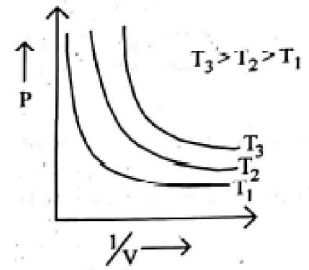
(2) A is true but R is false.

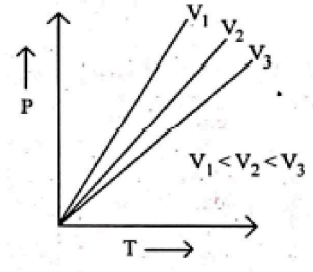
(3) A is false but R is true.

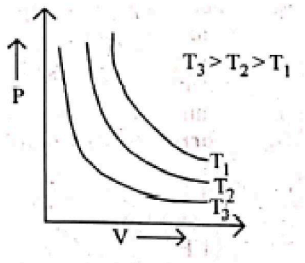
(4) Both A and R are true and R is the correct explanation of A.

65. Which amongst the following options is correct graphical representation of Boyle's Law?

(1) 

(2) 

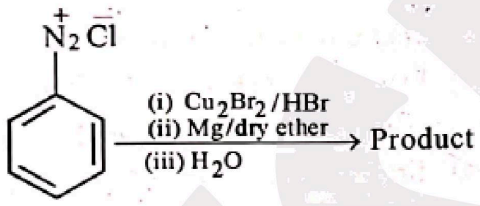
(3) 

(4) 

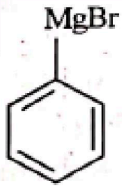
66. In Lassaigne's extract of an organic compound, both nitrogen and sulphur are present, which gives blood red colour with Fe^{3+} due to the formation of

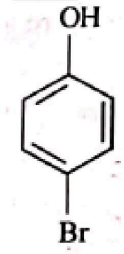
(1) NaSCN
(2) $[Fe(CN)_5NOS]^{4-}$
(3) $[Fe(SCN)]^{2+}$
(4) $Fe_4[Fe(CN)_6]_3 \cdot XH_2O$

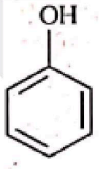
67. Identify the product in the following reaction:



(1)

(2) 

(3) 

(4) 

68. Select the correct statements from the following :

A. Atoms of all elements are composed of two fundamental particles.
B. The mass of the electron is 9.10939×10^{-31} kg.
C. All the isotopes of a given element show same chemical properties.
D. Protons and electrons are collectively known as inucleons.
E. Dalton's atomic theory, regarded the atom as an ultimate particle of matter.

Choose the correct answer from the options given below :

(1) C, D and E only
(2) A and E only
(3) B, C and E only
(4) A, B and C only

69. A compound is formed by two elements A and B. The element B forms cubic close packed structure and atoms of A occupy 1/3 of tetrahedral voids. If the formula of the compound is A_xB_y, then the value of x + y is in option

(1) 4 (2) 3
(3) 2 (4) 5

70. Given below are two statements :

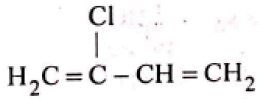
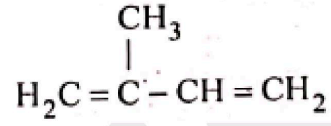
Statement I : A unit formed by the attachment of a base to 1' position of sugar is known as nucleoside

Statement II : When nucleoside is linked to phosphorous acid at 5' -position of sugar moiety, we get nucleotide.

In the light of the above statements, choose the correct answer from the options given below :

(1) Both Statement I and Statement II are false.
(2) Statement I is true but Statement II is false.
(3) Statement I is false but Statement II is, true.
(4) Both Statement I and Statement II are true.

71. Which amongst the following molecules on polymerization produces neoprene?

(1) 
(2) $H_2C = CH - C \equiv CH$
(3) 
(4) $H_2C = CH - CH = CH_2$

72. Taking stability as the factor, which one of the following represents correct relationship?

(1) $InI_3 > InI$ (2) $AlCl > AlCl_3$
(3) $TlI > TlI_3$ (4) $TlCl_3 > TlCl$

73. Some tranquilizers are listed below. Which one from the following belongs to barbiturates?

(1) Meprobamate
(2) Valium
(3) Veronal
(4) Chlordiazepoxide

74. Which of the following statements are NOT correct?

A. Hydrogen is used to reduce heavy metal oxides to metals.
B. Heavy water is used to study reaction mechanism.
C. Hydrogen is used to make saturated fats from oils.
D. The H-H bond dissociation enthalpy is lowest as compared to a single bond between two atoms of any element.
E. Hydrogen reduces oxides of metals that are more active than iron.

Choose the most appropriate answer from the options given below :

(1) B, D only
(2) D, E only
(3) A, B, C only
(4) B, C, D, E only

75. Intermolecular forces are forces of attraction and repulsion between interacting particles that will include :

A. dipole - dipole forces.
B. dipole - induced dipole forces.
C. hydrogen bonding.
D. covalent bonding.
E. dispersion forces.

Choose the most appropriate answer from the options given below :

(1) A, B, C, D are correct.
(2) A, B, C, E are correct.
(3) A, C, D, E are correct.
(4) B, C, D, E are correct.

76. Amongst the given options which of the following molecules / ion acts as a Lewis acid?

(1) H_2O (2) BF_3
(3) OH^- (4) NH_3

77. The right option for the mass of CO_2 produced by heating 20 g of 20% pure limestone is (Atomic mass of Ca = 40)

$\left[CaCO_3 \xrightarrow{1200K} CaO + CO_2\right]$

(1) 1.76 g (2) 2.64 g
(3) 1.32 g (4) 1.12 g

78. The relation between n_m, (n_m = the number of permissible values of magnetic quantum number (m)) for a given value of azimuthal quantum number (l), is

(1) $\ell = 2n_m + 1$

(2) $n_m = 2\ell^2 + 1$

(3) $n_m = \ell + 2$

(4) $\ell = \frac{n_m - 1}{2}$

79. The stability of Cu^{2+} is more than Cu^{+} salts in aqueous solution due to -

(1) enthalpy of atomization.
(2) hydration energy.
(3) second ionisation enthalpy,
(4) first ionisation enthalpy.

80. Which one of the following statements is correct?

(1) All enzymes that utilise ATP in phosphate transfer require Ca as the cofactor.
(2) The bone in human body is an inert and unchanging substance.
(3) Mg plays roles in neuromuscular function and interneuronal transmission.
(4) The daily requirement of Mg and Ca in the human body is estimated to be 0.2 - 0.3 g.

81. Which of the following reactions will NOT give primary amine as the product?

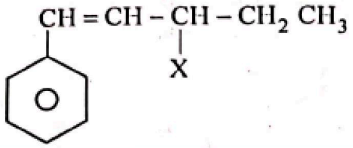
(1) $CH_3CN \xrightarrow[(ii)\ H_3O^+]{(i)\ LiAlH_4} Product$

(2) $CH_3NC \xrightarrow[(ii)\ H_3O^+]{(i)\ LiAlH_4} Product$

(3) $CH_3CONH_2 \xrightarrow[(ii)\ H_3O^+]{(i)\ LiAlH_4} Product$

(4) $CH_3CONH_2 \xrightarrow{Br_2/KOH} Product$

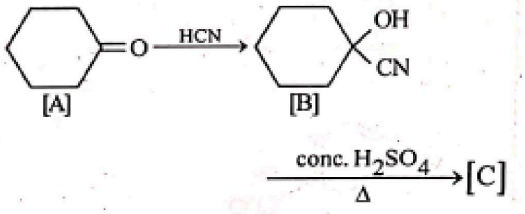
82. The given compound



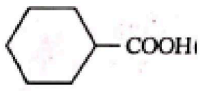
is an example of _____.

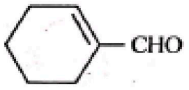
(1) aryl halide (2) allylic halide
(3) vinylic halide (4) benzylic halide

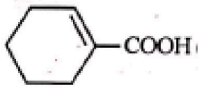
83. Complete the following reaction :

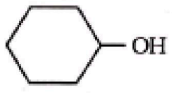


[C] is _____

(1) 

(2) 

(3) 

(4) 

84. Homoleptic complex from the following complexes is :

(1) Diamminechloridonitrito - N - platinum (II)

(2) Pentaamminecarbonatocobalt (III) chloride

(3) Triamminetriaquachromium (III) chloride

(4) Potassium trioxalatoaluminate (III)

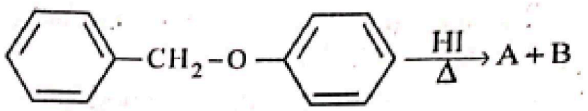
85. Weight (g) of two moles of the organic compound, which is obtained by heating sodium ethanoate with sodium hydroxide in presence of calcium oxide is :

(1) 32 (2) 30

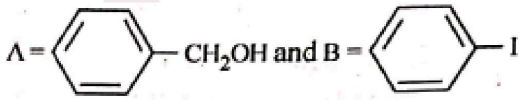
(3) 18 (4) 16

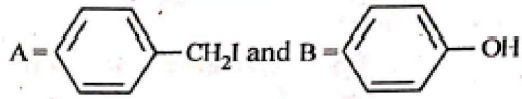
Section – B (Attempt ANY 10)

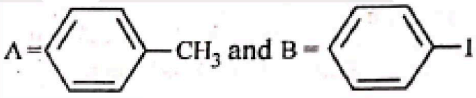
86. Consider the following reaction :

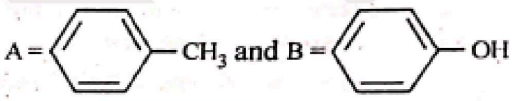


Identify products A and B.

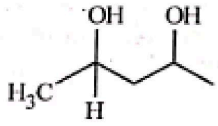
(1) 

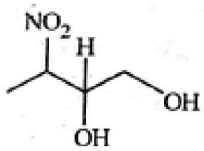
(2) 

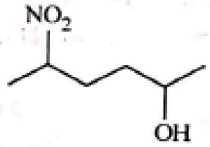
(3) 

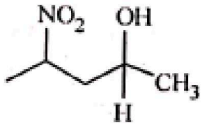
(4) 

87. Which amongst the following will be most readily dehydrated under acidic conditions ?

(1) 

(2) 

(3) 

(4) 

88. The equilibrium concentrations of the species in the reaction A + B ⇌ C + D are 2, 3, 10 and 6 mol L^{-1}, respectively at 300 K. ΔG° for the reaction is (R = 2 cal / mol K)

(1) – 137.26 cal (2) – 1381.80 cal
(3) – 13.73 cal (4) 1372.60 cal

89. Given below are two statements :

Statement I : The nutrient deficient water bodies lead to eutrophication.

Statement II : Eutrophication leads to decrease in the level of oxygen in the water bodies.

In the light of the above statements, choose the correct answer from the options given below :

(1) Both Statement I and Statement II are false.
(2) Statement I is correct but Statement II is false.
(3) Statement I is incorrect but State II is true.
(4) Both Statement I and Statement II are true.

90. Which amongst the following options is the correct relation between change in enthalpy and change in internal energy?

(1) $\Delta H = \Delta U + \Delta n_g RT$
(2) $\Delta H - \Delta U = -\Delta nRT$
(3) $\Delta H + \Delta U = \Delta nR$
(4) $\Delta H = \Delta U - \Delta n_g RT$

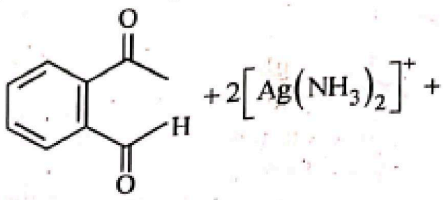
91. Match List -I with List - II :

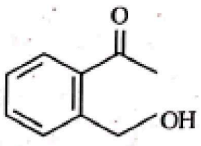
	Column I (Oxoacids of Sulphur)		Column II (Bonds)
A.	Peroxodisulphuric acid	I.	Two S-OH, Four S = O, One S-O-S
B.	Sulphuric acid	II.	Two S-OH, One S = O
C.	Pyrosulphuric acid	III.	Two S-OH, Four S = O,
D.	Sulphurous acid	IV.	Two S-OH, Two S = O

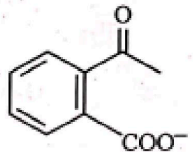
Choose the correct answer from the options given below :

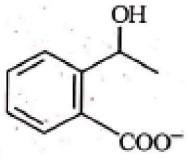
(1) A-III, B-IV, C-I, D-II
(2) A-I, B-III, C-IV, D-II
(3) A-III, B-IV, C-II, D-I
(4) A-I, B-III, C-II, D-IV

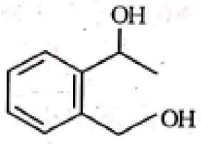
92. Identify the major product obtained in the following reaction :



(1) 

(2) 

(3) 

(4) 

93. Pumice stone is an example of –

(1) gel (2) solid sol

(3) foam (4) sol

94. The reaction that does NOT take place in a blast furnace between 900 K to 1500 K temperature range during extraction of iron is :

(1) $FeO + CO \rightarrow Fe + CO_2$

(2) $C + CO_2 \rightarrow 2CO$

(3) $CaO + SiO_2 \rightarrow CaSiO_3$

(4) $Fe_2O_3 + CO \rightarrow 2FeO + CO_2$

95. Which of the following statements are INCORRECT?

A. All the transition metals except scandium form MO oxides which are ionic.

B. The highest oxidation number corresponding to the group number in transition metal oxides is attained in Sc_2O_3 to Mn_2O_7.

C. Basic character increases from V_2O_3 to V_2O_4 to V_2O_5.

D. V_2O_4 dissolves in acids to give salts VO_4^{3-} salts

E. CrO is basic but Cr_2O_3 is amphoteric

Choose the correct answer from the options given below :

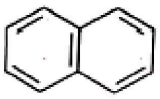
(1) B and D only

(2) C and D only

(3) B and C only

(4) A and E only

96. Consider the following compounds/species:

i. 

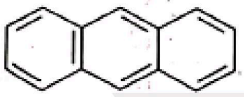
ii.

iii.

iv.

v.

vi.

vii. 

The number of compounds/species which obey Huckel's rule is _____.

(1) 6 (2) 2

(3) 5 (4) 4

97. What fraction of one edge centred octahedral void lies in one one unit cell of fcc?

(1) $\frac{1}{3}$ (2) $\frac{1}{4}$

(3) $\frac{1}{12}$ (4) $\frac{1}{2}$

98. Which complex compound is most stable?

(1) $[Co(NH_3)_3(NO_3)_3]$

(2) $[CoCl_2(en)_2]NO_3$

(3) $[Co(NH_3)_6]_2(SO_4)_3$

(4) $[Co(NH_3)_4(H_2O)Br](NO_3)_2$

99. On balancing the given redox reaction,

$$aCr_2O_7^{2-} + bSO_{3(aq)}^{2-} + cH_{(aq)}^{+} \rightarrow$$

$$2aCr_{(aq)}^{3+} + bSO_{4(aq)}^{2-} + \frac{c}{2}H_2O_{(\ell)}$$

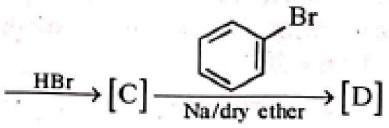
the coefficients a, b and c are found to be, respectively -

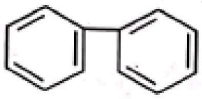
(1) 3, 8, 1 (2) 1, 8, 3

(3) 8, 1, 3 (4) 1, 3, 8

100. Identify the final product [D] obtained in the following sequence of reactions.

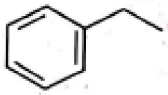
$$CH_3CHO \xrightarrow[(ii)\ H_3O^+]{(i)\ LiAlH_4} [A] \xrightarrow[\Delta]{H_2SO_4} [B]$$



(1) 

(2) C_4H_{10}

(3) $HC \equiv C^-Na^+$

(4) 

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AAKASH YADAV
641

RAFEA SHAIKH
637

SUKANYA SINGH
617

JAGDISH KUMAR PATEL
616

PRATHAMESH KULKARNI
599

PUNEET SOLANKI
588

REVIN PATTAR
583

SHREYAS CHOUDHARY
582

PURVI THAKAR
581

KESAR RATHOD
575

VAIBHAV SHUKLA
572

DEEPIKA KAPURIA
570

KRISH AMRELIA
570

DIYA PATEL
547

NEEL PARMAR

MANSI DUBEY

VINAYAK DWIVEDI

CHAHAL JAISWAL

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DIVYA SUTHAR

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CHIRAG D.
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TNMC, MUMBAI

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GMC, CHANDRAPUR

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GMC, YAVATMAL

MAHEK B.
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DEECHA P.
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